CLAIMS

A method of retrieving object references in a stack comprising:

retrieving an object data structure from the stack; extracting an object reference from one part of the data structure; and

extracting a reference to the next data structure in the stack from another part of the data structure.

- A method as claimed in claim 1/further comprising 2. retrieving the next data structure and retrieving the corresponding object reference and corresponding next data structure reference.
- A method as claimed in claim 2 further comprising retrieving all linked data structures in the stack.
- A method as claimed in claim 3 further comprising retrieving a last data structure having no next data structure reference/.
- 5. A method as/claimed in claim 4 further comprising retrieving the first object data structure in the stack referenced by/a first object data structure pointer.
- 6. A method as claimed in claim 5 further comprising using the retrieved object references to define a root set of bjects.

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7. A method as claimed in claim 6 comprising: defining a reachable set of objects as all objects referenced directly or indirectly by the rook set objects.

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A method as claimed in claim 7 further comprising identifying all objects within the process and reclaiming the memory space of all non-reachable objects.

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9. A method as claimed in claim/7 or 8 further comprising moving reachable objects so that they are contiguous in memory and updating all object references in the stack by tracing through the chain of object data structures.

A method of managing a object in a stack based process comprising:

storing an object data structure in the stack comprising a reference to the object and a reference to a previously stored bject data structure in the stack.

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A method as claimed in claim 11 further comprising linking the object data structure to the previously stored object data structure.

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- A method as claimed in claim 12 further comprising: 13. storing a variable pointing to the previously stored object data structure at the top of the stack;
- using the variable when storing a new object data strugture; and

updating the variable with the new object data structure reference.

14. A method as claimed in claim 13 further comprising: saving the variable pointer; storing the object data structure; updating the variable with the reference to the latest stored object data structure; performing the process; and restoring the stack pointer.

15. A method as claimed in claim 11 further comprising: retrieving an object data structure and extracting the associated object reference and data structure reference;

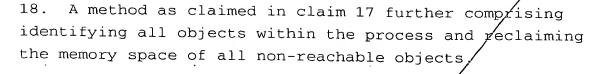
using the associated data structure reference to retrieve the previously stored object data structure; retrieving all the object references in the stack by tracing through the chained of object data structures.

- 16. A method as claimed in claim 15 further comprising using the retrieved object pointers to identify a root set of objects.
- 17. A method as claimed in claim 16 comprising:
 identifying all objects referenced directly or
 indirectly by the root set objects and marking the root
 set and all referenced objects as reachable.

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A method as claimed in claim 18 further comprising moving reachable objects in process memory so that they are contiguous and updating all object/references in the stack by tracing through the chain of object data structures.

A system for retrieving object references in a stack comprising:

means for retrieving an object data structure from the stack;

means for extracting an object reference from one part of the data structure; and

means for extracting a reference to the next data structure in the stack from another part of the data structure.